

CLAIMS

1. A method of coding video data available in the form of a first input stream of video frames, said method comprising the steps of :
 - (A) encoding said first input stream (FIS) to produce a first coded base layer stream (BL1) suitable for a transmission at a first base layer bitrate ;
 - (B) based on said first input stream (FIS) and a locally decoded version of said first coded base layer stream, generating a first set of residual frames in the form of a first enhancement layer stream and encoding said first enhancement layer stream to produce a first coded enhancement layer stream (EL1) ;
 - 10 (C) repeating at least once a process of the same type, i.e. generating a second input stream (SIS) by difference between said first input stream (FIS) and said locally decoded version of the first coded base layer stream, and applying to said second input stream (SIS) two steps of the type (A) and (B) in order to produce :
 - based on said second input stream (SIS), a second coded base layer stream (BL2), suitable for a transmission at a second base layer bitrate ; and
 - 15 - based on said second input stream (SIS) and a locally decoded version of said second coded base layer stream, a second set of residual frames in the form of a second enhancement layer stream which is then encoded to generate a second coded enhancement layer stream (EL2) ;
 - 20 (D) any further repetition of said process comprising operations similar to the operations provided in (C) but with progressively increased indices in order to produce third coded base and enhancement layer streams (BL3, EL3, etc) ;
said first input stream being thus, for obtaining a predetermined required spatial resolution, compressed by :
 - 25 c) encoding the base layers (BL1, BL2,...) up to said required spatial resolution with a lower bitrate ; and
 - d) allocating a higher bitrate to the last base layer and/or to the enhancement which corresponds to said required spatial resolution.
2. A coding method according to claim 1, in which, before each repeating step according to (C) or (D), a DC-offset value is added to the input stream corresponding to said repeating step.
- 30 3. A memory medium including code for encoding video data available in the form of a first input stream of video frames, said code comprising :

(A) a code for encoding said first input stream (FIS) to produce a first coded base layer stream (BL1) suitable for a transmission at a first base layer bitrate ;

(B) based on said first input stream (FIS) and a locally decoded version of said first coded base layer stream, a code for generating a first set of residual frames in the form of a first enhancement layer stream and encoding said first enhancement layer stream to produce a first coded enhancement layer stream (EL1) ;

(C) a code for repeating at least once a process of the same type, i.e. for generating a second input stream (SIS) by difference between said first input stream (FIS) and said locally decoded version of the first coded base layer stream, and for applying to said second input stream (SIS) two steps of the type (A) and (B) in order to produce :

- based on said second input stream (SIS), a second coded base layer stream (BL2), suitable for a transmission at a second base layer bitrate ; and
- based on said second input stream (SIS) and a locally decoded version of said second coded base layer stream, a second set of residual frames in the form of a second enhancement layer stream which is then encoded to generate a second coded enhancement layer stream (EL2) ;

(D) a code for any further repetition of said process with operations similar to the operations provided in (C) but referenced with progressively increased indices in order to produce third coded base and enhancement layer streams (BL3, EL3, etc).

4. A device for coding video data available in the form of a first input stream of video frames, said coding device comprising the following means :

(A) means for encoding said first input stream (FIS) to produce a first coded base layer stream (BL1) suitable for a transmission at a first base layer bitrate ;

(B) based on said first input stream (FIS) and a locally decoded version of said encoded first base layer stream, means for generating a first set of residual frames in the form of a first enhancement layer stream and to encode said first enhancement layer stream to produce a first coded enhancement layer stream (EL1) ;

(C) means for repeating at least once a process of the same type, i.e. for generating a second input stream (SIS) by difference between said first input stream (FIS) and said locally decoded version of the first coded base layer stream, and for applying to said second input stream (SIS) two steps of the type (A) and (B) in order to produce a second coded base layer stream (BL2), suitable for a transmission at a second base layer bitrate, and a second coded enhancement layer stream (EL2) ;

any further repetition of the process of the step (C) comprising operations similar to the operations provided in (C) but with progressively increased indices in order to produce third coded base and enhancement layer streams (BL3, EL3, etc) ;

said first input stream being thus, for obtaining a predetermined required spatial resolution,

5 compressed by encoding the base layers (BL1, BL2,...) up to said required spatial resolution with a lower bitrate and allocating a higher bitrate to the last base layer and/or to the enhancement which corresponds to said required spatial resolution.

5. A transmission system comprising a video coding device according to claim 4 and, in said device or in association with it, a controller of the transmission of said coded base layers
10 (BL1, BL2,...) and enhancement layers (EL1, EL2,...) to a plurality of decoders or users belonging to a multimedia network, said controller implementing a transmission of all or some – depending on the bandwidth available - of the coded base layers and, according to the requirements of a specific decoder or user or to associated decoding capabilities, a coded enhancement layer at the corresponding specific resolution only to said decoder or user.